

Primary batteries - Part 4: Safety of lithium batteries

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60086-4:2015 sisaldab Euroopa standardi EN 60086-4:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 60086-4:2015 consists of the English text of the European standard EN 60086-4:2015.
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English Version

Primary batteries - Part 4: Safety of lithium batteries (IEC 60086-4:2014)

Piles électriques - Partie 4: Sécurité des piles au lithium
(IEC 60086-4:2014)

Primärbatterien - Teil 4: Sicherheit von Lithium-Batterien
(IEC 60086-4:2014)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 35/1324/FDIS, future edition 4 of IEC 60086-4, prepared by IEC TC 35 "Primary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60086-4:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-07-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-10-08

This document supersedes EN 60086-4:2007.

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Endorsement notice

The text of the International Standard IEC 60086-4:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60027-1:1992	NOTE Harmonized as EN 60027-1:1992.
IEC 60068-2-6:1995	NOTE Harmonized as EN 60068-2-6:1995.
IEC 60068-2-27:1987	NOTE Harmonized as EN 60068-2-27:1987.
IEC 60068-2-31:2008	NOTE Harmonized as EN 60068-2-31:2008.
IEC 60086-5:2011	NOTE Harmonized as EN 60086-5:2011.
IEC 60617 (Series)	NOTE Harmonized as EN 60617 (Series).
IEC 62133	NOTE Harmonized as EN 62133.
IEC 61960	NOTE Harmonized as EN 61960.
IEC 62281	NOTE Harmonized as EN 62281.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here:

www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60086-1	2011	Primary batteries -- Part 1: General	EN 60086-1	2011
IEC 60086-2	-	Primary batteries -- Part 2: Physical and electrical specifications	EN 60086-2	-

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INTRODUCTION

The concept of safety is closely related to safeguarding the integrity of people and property. This standard specifies tests and requirements for lithium batteries and has been prepared in accordance with ISO/IEC guidelines, taking into account all relevant national and international standards which apply.

Lithium batteries are different from conventional primary batteries using aqueous electrolyte in that they contain flammable materials.

Consequently, it is important to carefully consider safety during design, production, distribution, use, and disposal of lithium batteries. Based on such special characteristics, lithium batteries for consumer applications were initially small in size and had low power output. There were also lithium batteries with high power output which were used for special industrial and military applications and were characterized as being “technician replaceable”. The first edition of this standard was drafted to accommodate this situation.

However, from around the end of the 1980s, lithium batteries with high power output started to be widely used in the consumer replacement market, mainly as a power source in camera applications. Since the demand for such lithium batteries with high power output significantly increased, various manufacturers started to produce these types of lithium batteries. As a consequence of this situation, the safety aspects for lithium batteries with high power output were included in the second edition of this standard.

Primary lithium batteries both for consumer and industrial applications are well-established safe and reliable products in the market, which is at least partly due to the existence of safety standards such as this standard and, for transport, IEC 62281. The fourth edition of this standard therefore reflects only minor changes which became necessary in order to keep it harmonized with IEC 62281 and to continuously improve the user information about safety related matters.

Guidelines addressing safety issues during the design of lithium batteries are provided in Annex A. Annex B provides guidelines addressing safety issues during the design of equipment where lithium batteries are installed. Both Annex A and B reflect experience with lithium batteries used in camera applications and are based on [20].

Safety is freedom from unacceptable risk. There can be no absolute safety: some risk will remain. Therefore a product, process or service can only be relatively safe. Safety is achieved by reducing risk to a tolerable level determined by the search for an optimal balance between the ideal of absolute safety and the demands to be met by a product, process or service, and factors such as benefit to the user, suitability for purpose, cost effectiveness, and conventions of the society concerned.

As safety will pose different problems, it is impossible to provide a set of precise provisions and recommendations that will apply in every case. However, this standard, when followed on a judicious “use when applicable” basis, will provide reasonably consistent standards for safety.